KODAK 8000C Digital Panoramic and Cephalometric Extraoral Imaging System

User Guide

Notice

Congratulations on your purchase of the KODAK 8000C Digital Panoramic and Cephalometric Extraoral Imaging System. The KODAK 8000C unit is the KODAK 8000 equipped with the cephalostat unit. Thank you for your confidence in our products and we will do all in our power to ensure your complete satisfaction.

The User Guide for the KODAK 8000C Digital Panoramic and Cephalometric Extraoral Imaging System includes information on the cephalometric features. For the panoramic features, see the KODAK 8000 Extraoral Imaging System (SM722) User Guide. We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system.

WARNING: We recommend that you consult the "Safety, Regulatory and the Technical Specification User Guide" before using the KODAK 8000C Extraoral Imaging Systems.

The information contained in this Guide may be subject to modification without notice, justification or notification to the persons concerned.

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The US Federal law restricts this device to sale by or on the order of a physician.

This document is originally written in English.

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KODAK 8000C Digital Panoramic and Cephalometric Extraoral Imaging System, complies with Directive 93/42/CEE relating to medical equipment.
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0086

Manufacturer

Carestream Health, Inc.
150 Verona Street
Rochester NY 14 608

Authorized Representative in the European Community

EC REP

TROPHY
4, Rue F. Pelloutier, Croissy-Beaubourg
77435 Marne la Vallée Cedex 2, France

Contents

1—About This Guide

Conventions in this Guide 1–1

2—KODAK 8000C UNIT OVERVIEW

General Overview 2–1
- Mobile Components 2–2
- General Functional Components 2–3
- Digital Sensor Locations 2–4
- Laser Locations 2–5

Control Panel 2–6

X-Ray Remote Control Overview 2–7

Positioning Accessories and Replacement Parts 2–8

3—IMAGING SOFTWARE OVERVIEW

Computer System Requirements 3–1

General Software Overview 3–2
- KODAK Dental Imaging Software 3–2
- Cephalometric Acquisition Interface Module 3–2

Cephalometric Acquisition Interface Module 3–3
- Cephalometric Acquisition Window Overview 3–3
  - Cephalometric Program Pane 3–5
  - Cephalometric Patient Pane 3–6
  - Cephalometric Parameter Pane 3–7

4—GETTING STARTED

Switching on the Unit 4–1

Starting the Imaging Software 4–2

Creating a Patient Record 4–2

Accessing the Cephalometric Acquisition Window 4–3

5—ACQUIRING CEPHALOMETRIC IMAGES

Acquiring a Lateral Image 5–1
- Preparing the Unit and Setting the Acquisition Parameters 5–1

Acquiring a Frontal AP or PA Image 5–5
- Preparing the Unit and Setting the Acquisition Parameters 5–5
- Preparing and Positioning the Patient 5–6

Acquiring an Oblique Image 5–9
- Preparing the Unit and Setting the Acquisition Parameters 5–9
- Preparing and Positioning the Patient 5–10

Acquiring a Submento-Vertex Image 5–12
- Preparing the Unit and Setting the Acquisition Parameters 5–12
- Preparing and Positioning the Patient 5–13

Acquiring a Carpus Image 5–16
Preparing the Unit and Setting the Acquisition Parameters 5–16
Preparing and Positioning the Patient 5–17
X-Ray Dose Emission Information 5–19

6—MAINTENANCE

Daily 6–1
Monthly 6–1
Annually 6–1

7—TROUBLESHOOTING

Quick Troubleshooting 7–1

Chapter 1
About This Guide

Conventions in this Guide

The following special messages emphasize information or indicate potential risk to personnel or equipment:

WARNING
Warns you to avoid injury to yourself or others by following the safety instructions precisely.

CAUTION
Alerts you to a condition that might cause serious damage.

IMPORTANT
Alerts you to a condition that might cause problems.

NOTE
Emphasizes important information.

TIP
Provides extra information and hints.

Chapter 2
KODAK 8000C UNIT OVERVIEW

The KODAK 8000C digital panoramic and cephalometric unit is designed to carry out the following radiological examinations:

- Panoramic
- Maxillary Sinus
- Temporomandibular Joints (TMJ)
- Lateral cephalometric
- Frontal (PA or AP) cephalometric
- Oblique cephalometric
- Submento-vertex cephalometric
- Carpus cephalometric

General Overview

The KODAK 8000C digital panoramic and cephalometric unit is composed of the following functional components:

- The unit head that contains all the electronic control
- The rotative arm
- The fixed arm with a control panel
- The panoramic digital sensor
- The x-ray source assembly
- The x-ray remote control
- The chin rest and bite block
- The chin rest base
- The panoramic chin rest and bite block
- The temple supports
- The hand grips
- The cephalostat arm
- The cephalostat head
- The head clamps and ear cones
- The nasion support
- The acquisition software (see "**Imaging Software Overview**")

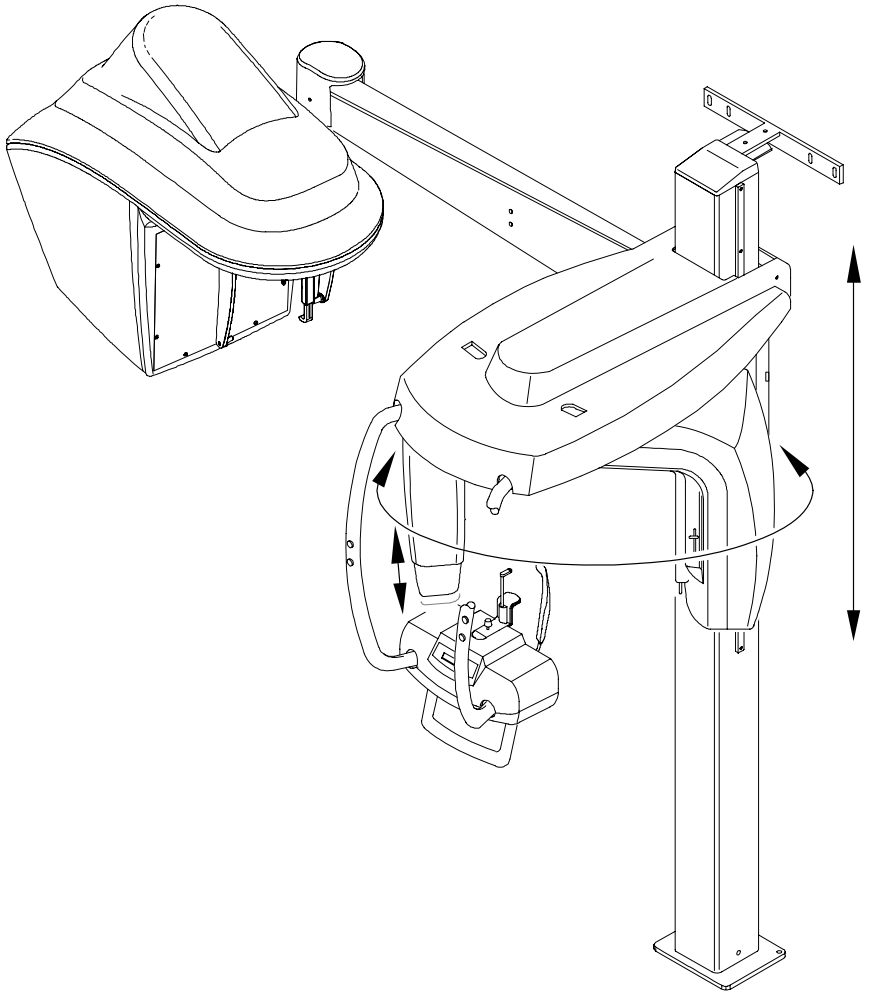
The following figures illustrate the general overview of the KODAK 8000C digital panoramic and cephalometric units.

IMPORTANT
The Cephalostat can be positioned either on the right or the left side of the KODAK 8000 unit.

Mobile Components

Figure 2-1 illustrates the up and down movement of the KODAK 8000C digital panoramic and cephalometric units mobile component and the rotation of the rotative arm.

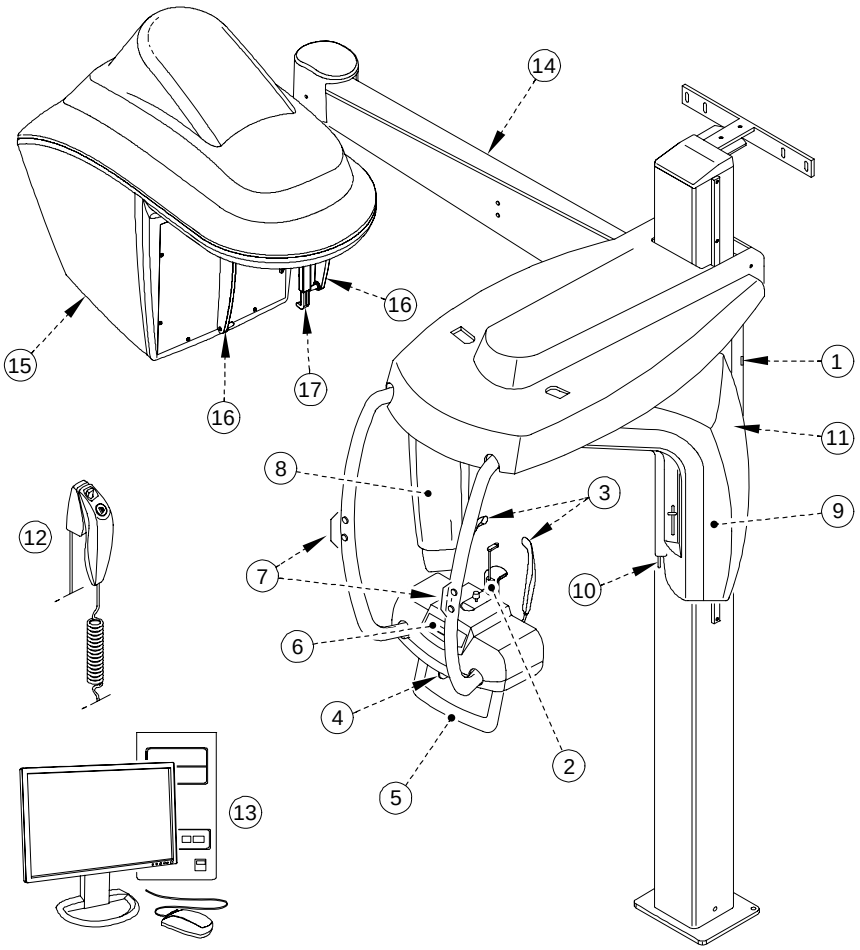
Figure 2–1 KODAK 8000 and KODAK 8000C Units Mobile Components



General Functional Components

Figure 2-2 illustrates the general functional components of the KODAK 8000C digital panoramic and cephalometric units.

Figure 2–2 KODAK 8000 and KODAK 8000C Units Functional Components

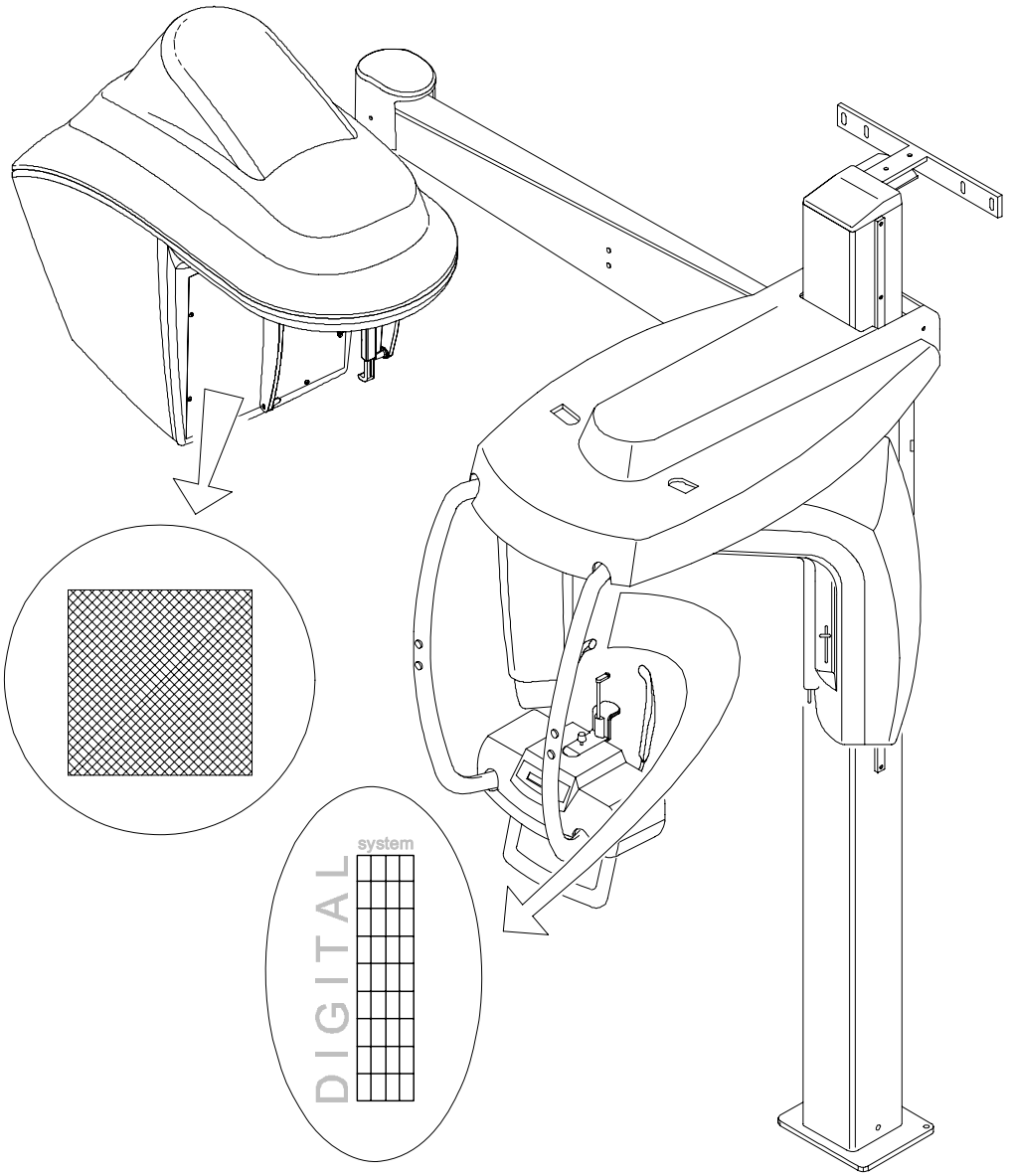


1	ON/OFF button	**10**	Collimator selector
2	Chin rest and bite block	**11**	Unit rotative arm
3	Temple supports	**12**	X-Ray remote control
4	Temple supports control knob	**13**	PC hosting the imaging and the acquisition software
5	Hand Grips	**14**	Cephalostat arm
6	Control panel	**15**	Cephalostat head
7	Height adjustment buttons	**16**	Head clamps and ear cones
8	Panoramic digital sensor	**17**	Nasion support
9	X-Ray source assembly		

Digital Sensor Locations

Figure 2-3 illustrates the locations of the digital panoramic and digital cephalometric sensors of the KODAK 8000C digital panoramic and cephalometric units.

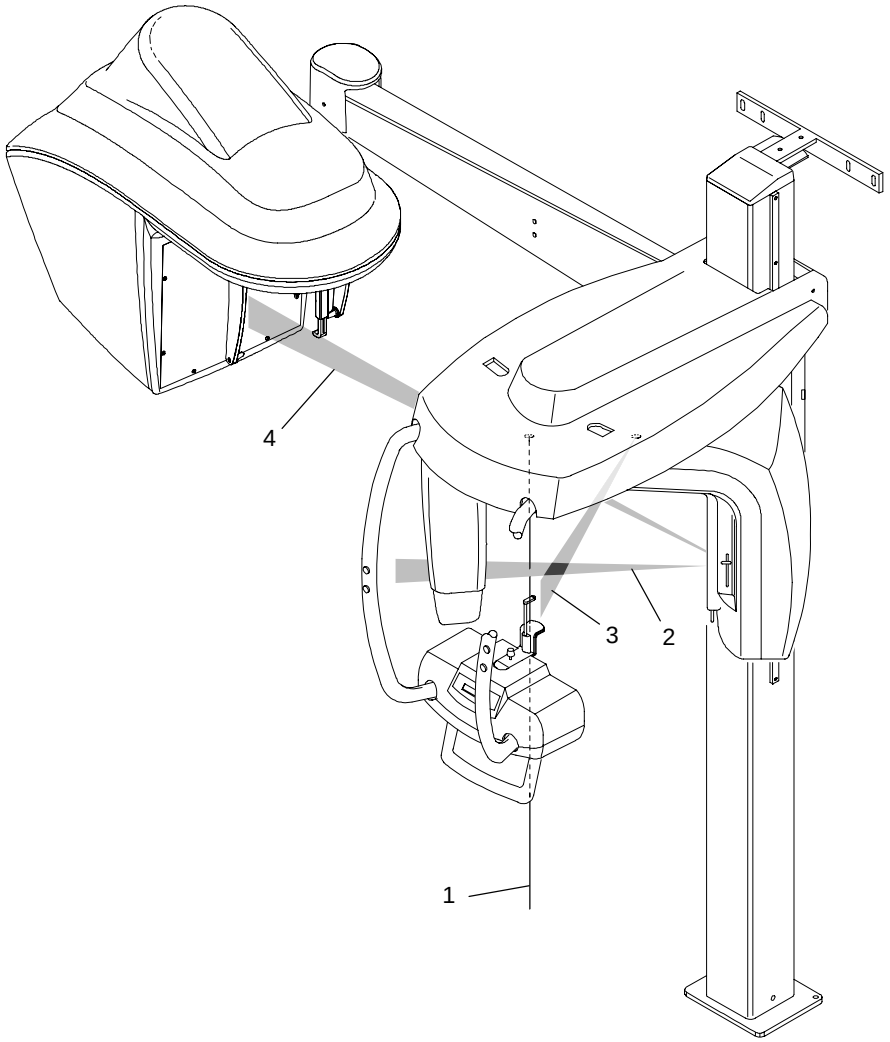
Figure 2–3 KODAK 8000 and KODAK 8000C Units Digital Sensor Locations



Laser Locations

Figure 2-4 illustrates the location of the lasers of the KODAK 8000C digital panoramic and cephalometric units.

Figure 2–4 KODAK 8000 and KODAK 8000C Units Laser Beam Locations



1 Mid-sagittal plane positioning laser beam

2 Frankfort plane positioning laser beam

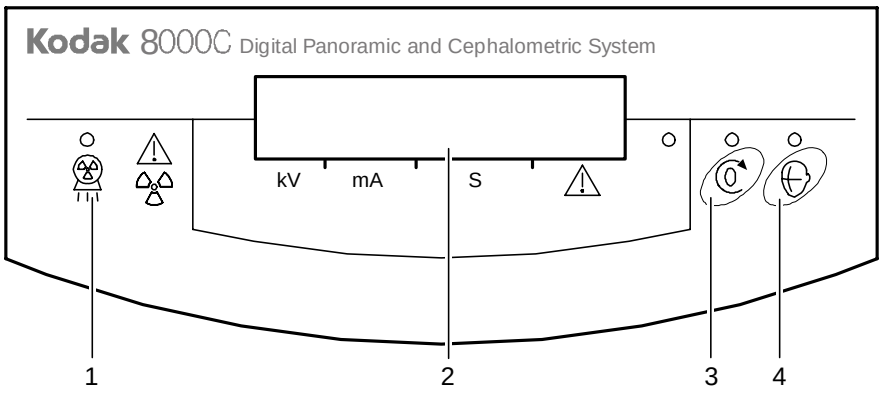
3 Canine plane positioning laser beam

4 Cephalometric Frankfort plane positioning laser beam

Control Panel

The control panel is an alphanumeric, digital soft touch console. It allows the operator to control certain unit functions. It also displays the operating parameters and error messages.

Figure 2–5 Unit Control Panel



1 **X-Ray emission LED:** Yellow, indicates the x-rays are being emitted.

2 **Display Screen:** Displays the current acquisition parameters and the error messages.

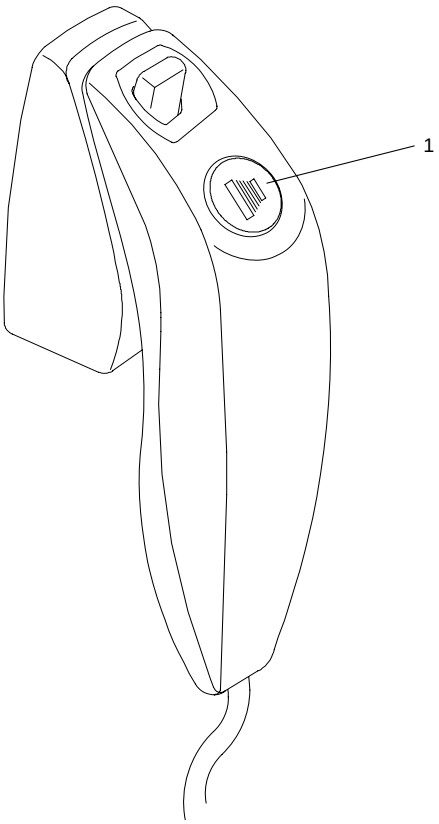
3 **Reset button:** Resets the unit arm to the initial position to enable the patient to enter and exit the unit.

4 **Laser beam button:** Activates the laser positioning beams to correctly position the patient.

X-Ray Remote Control Overview

The x- ray remote control enables you to launch a radiological image acquisition via the exposure button from outside the x-ray room. You must press and hold the exposure button until the end of acquisition. Premature release of the exposure button interrupts the acquisition.

Figure 2–6 X-Ray Remote Control



1 Exposure button: launches image acquisition.

Positioning Accessories and Replacement Parts

The following accessories are used when positioning a patient. They are delivered with the KODAK 8000 digital panoramic and KODAK 8000C digital panoramic and cephalometric unit.

Table 2-1 and Table 2-2 list the panoramic and cephalometric positioning accessories.

Table 2–1 Panoramic Positioning Accessories and Replacement Parts

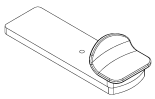
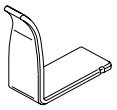
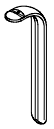
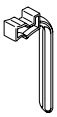
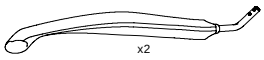
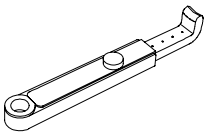
Accessory	Description
	Panoramic chin rest and TMJ x2
	Maxillary sinus chin rest
	TMJ x2 and TMJ x4 nose rest
	Standard bite block
	Bite block for edentulous patients
	A set of right and left temple supports
	Single use sheaths for bite blocks (500 pcs box)

Table 2–2 Cephalometric Positioning Accessories and Replacement Parts

Accessory	Description
x2	Head clamps with ear cones
	Nasion support

Chapter 3
IMAGING SOFTWARE OVERVIEW

Computer System Requirements

This section specifies the minimum computer system requirements for KODAK 8000C digital panoramic and cephalometric extraoral imaging system software.

IMPORTANT

It is MANDATORY to check that the computer system configuration is compatible with the computer system requirements for the KODAK 8000C software. If necessary you MUST update your computer system configuration. KODAK 8000C MUST be connected to the computer via a point-to-point Ethernet link and not via a LAN. DO NOT place the computer and the peripheral equipment connected to it in the immediate vicinity of the patient in the unit. Leave at least 1.5 m distance from the unit. The computer and the peripheral equipment must conform to the IEC 60950 standard.

Table 3–1 Minimum Computer System Requirements

Item	Viewing	Acquisition	Comments
CPU	2 GHz Intel Duo Core	2 GHz Intel Duo Core	
RAM	2 GB	2GB	RAM has a major impact on system performance.
Hard disk drive	• 1.2 GB for software installation • 80 GB free space to use the software	1.2 GB for software installation	
Graphic board	Nvidia / ATI based board supporting Open GL 1.2 with 256 MB of video RAM on AGP x8 video bus (for example: Nvidia GeForce 6800 GT)	Nvidia / ATI based board supporting Open Glide 1.2 with 256 MB of video RAM on AGP x8 video bus (for example: Nvidia GeForce 6800 GT)	The video RAM has major impact on system performance.
Monitor	• 1 monitor • 17" or larger • 1024 x 768 minimum screen resolution - 32 bits color mode	• 1 monitor • 17" • 1280 x 880 minimum screen resolution	Your monitor is a vital component in displaying quality images. Low-quality screens will prevent you from proper diagnoses and treatment.
Operating system (32 bits)	• Windows 2000 SP4 • Windows XP Home / Pro edition SP2 • Windows Vista	• Windows XP Home / Pro edition SP2 • Windows Vista	

Table 3–1 Minimum Computer System Requirements (Continued)

Item	Viewing	Acquisition	Comments
Ethernet interface	1 Ethernet interface	1 Ethernet interfaces (100Mbits)	If there is a LAN connection a second Ethernet interface is required.
CD/DVD drive	A DVD-BURNER drive is required.	A DVD-BURNER drive is required.	
Backup Media	Removable/portable, external hard disk drive	Removable/portable, external hard disk drive.	We strongly recommend a daily backup of x-ray images and patient records.

General Software Overview

The KODAK 8000C digital panoramic and cephalometric extraoral imaging system operates with the following software:

- KODAK dental imaging software
- Cephalometric acquisition interface module

KODAK Dental Imaging Software

The KODAK dental imaging software is a user-friendly working interface that was designed and developed specifically for radiological diagnosis. It is the common imaging platform for all our digital systems for dentistry.

The KODAK dental imaging software has the following features:

- Patient record management using **Patient Window** features
- Extraoral and intraoral image management using **Imaging Window** features

NOTE
For a complete information on the KODAK Dental Imaging Software, see the "*KODAK Dental Imaging Software, Quick Start Guide".*

Cephalometric Acquisition Interface Module

The cephalometric acquisition interface module is a user-friendly working interface that was designed and developed specifically for KODAK 8000C digital panoramic and cepahlometric extraoral imaging system.

Cephalometric Acquisition Interface Module

Cephalometric Acquisition Window Overview

The **Cephalometric Acquisition Window** is the main cephalometric interface with the KODAK 8000C cephalometric extraoral imaging system that provides you with imaging acquisition functions.

Figure 3–1 Cephalometric Acquisition Window

1 **Information button:**

- **About:** Identifies the Software and the Firmware versions
- **Reset of the Values**: Resets to the manufacturing parameter settings
- **Memorize settings**: Memorizes the user preference settings for each patient type (kV, mA and seconds)

2 **Preview Screen:** Displays the acquired image in real time.

3 **Selected Parameter Display:** Displays the current acquisition parameter settings.

4 **System Status Screen:** Displays various alert or warning messages originating from the unit.

5 **X-Rays ON / OFF button:** Turns off the x-ray emissions to demonstrate the acquisition process for the patient.

6 **Generator Cooling indicator:** Indicates the automatic cooling time (mm:ss) required for the generator to reach 0 for a new acquisition.

7 **Positioning laser button:** Activates the laser positionning beams to correctly position the patient.

8 **Reset button:** Resets the rotative arm in the start position.

9 **Ready Indicator LED**

- Green indicates the unit is ready to start acquisition.
- Black indicates the unit is not ready to start acquisition.

10 **Exit button:** Closes the Acquisition Window.

11 **X-Ray Emission indicator:** Yellow, indicates the x-ray emission status.

12 **Selector Button:** Selects different acquisition setting options.

- Click **Program** to select examination type options.
- Click **Patient** to select patient type parameters.
- Click **Parameters** to select exposure parameter options.

The **Selector button** enables you to access the following 3 panes:

- **Program pane:** Examination type options
- **Patient pane:** Patient type parameter options
- **Parameters pane:** Exposure parameter options

Cephalometric Program Pane

The cephalometric **Program pane** enables you to choose different radiological exams as well as different acquisition formats.

Figure 3–2 Cephalometric Program Pane

Radiological exam options:

Click for a lateral exam.

Click for a submento-vertex exam.

Click or for a frontal exam (AP and PA).

Click for a carpus exam.

Click for an oblique exam.

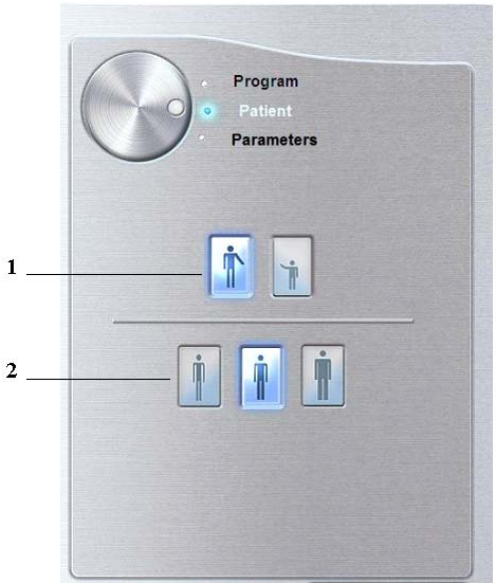
NOTE

The above list of exam types are only a sample of exam options of the **Program pane**.

Cephalometric Patient Pane

The cephalometric **Patient pane** enables you to choose different patient parameters. The selection of the patient parameters influences the quality of the image. The selected parameters must be based on the patient age and morphology.

Figure 3–3 Cephalometric Patient Pane



1 Patient type parameters:

Click if the patient is a child.

Click if the patient is adult.

2 Patient size parameters:

Click if the patient is small.

Click if the patient is medium.

Click if the patient is large.

Cephalometric Parameter Pane

The cephalometric **Parameter pane** enables you to choose exposure parameters for the radiological image acquisition. If the default parameter setting is not adapted to your patient type, you can manually adapt the parameter settings to the patient type and save this setting as the default setting.

Figure 3–4 Cephalometric Parameter Pane

1 Radiation dose options:

kV: Kilovolt

mA: Milliampere

S: Second

2 Fine-tuning buttons:

Click to fine-tune the kV, mA and the second.

3 Saving parameter button:

Click

to save the selected parameters.

Chapter 4
GETTING STARTED

Switching on the Unit

Before switching on the unit, check that:

- The installation of the unit is complete.
- The PC is switched on.

IMPORTANT

You must switch on the PC and wait for it to be ready for the connection before switching on the unit.

To switch on the unit, follow these steps:

1. On the unit column, press the **ON** button.
2. You must wait for a minute for the connection between the unit and the PC to be established. If you start the imaging software before the connection is established an error message is displayed. Click **OK,** close the imaging software and wait for the connection to be established.
3. You can now proceed to start the imaging software.

IMPORTANT

To increase the operating life of the x-ray tube, if the unit has not been used for a month, you must follow the following procedures before use.

1. In the **Panoramic Acquisition Window**, select the **Parameter pane.**
2. Select the following series of parameter settings:
   - 70 kV - 6.3 mA
   - 80 kV - 10 mA
   - 85 kV - 10 mA
3. Leave the x-ray room and close the door. For each parameter setting, from the x-ray remote control, press and hold the button to launch the x-ray

   The unit is now ready to be used for acquisition.

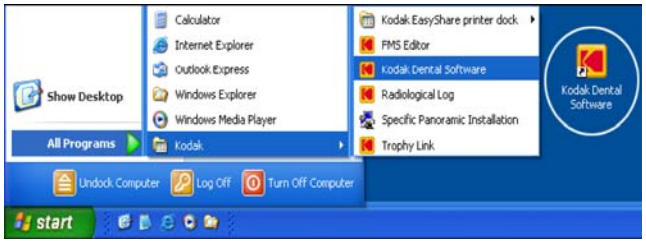
Starting the Imaging Software

To start the imaging software, follow these steps:

1. On your desktop, double-click .

   OR

   From your PC, click **Start > All Programs > Kodak > Kodak Dental Software.**

   A blank **Patient Window** is displayed.

2. Create or open an existing patient record.

Creating a Patient Record

To create a patient record, follow these steps:

1. In the **Patient Window,** from the toolbar, click

   OR

   From the menu bar, select **Patient > New**.

2. Enter the required patient information. The **Last name**, the **First name** and the **Date of birth** fields are required.

3. From the menu bar, select **Picture > Insert Picture** to add a ***.tif** or ***.bmp** picture of the patient to the record. Select the picture from your directory and click **Open**.

4. Click **OK** to save. The patient record is automatically assigned a 7-digit number starting with a letter (for example, M0000001).

5. Click to access the **Imaging Window**.

6. Select an image acquisition.

Accessing the Cephalometric Acquisition Window

To access the **Acquisition Windows**, follow these steps:

1. In the **Imaging Window,** from the toolbar, click to access the **Cephalometric Acquisition Window**.
2. Prepare the acquisition parameters and launch an acquisition.

Chapter 5
ACQUIRING CEPHALOMETRIC IMAGES

Acquiring a Lateral Image

Before acquiring a lateral image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Cephalometric Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To set the acquisition parameters, follow these steps:

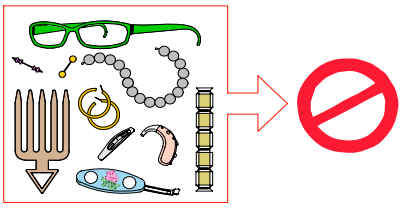
1. Raise and block the sensor manually.
2. On the x-ray source assembly, set the collimator selector to LA.
3. Position the head clamps manually for the lateral exam.

   IMPORTANT
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

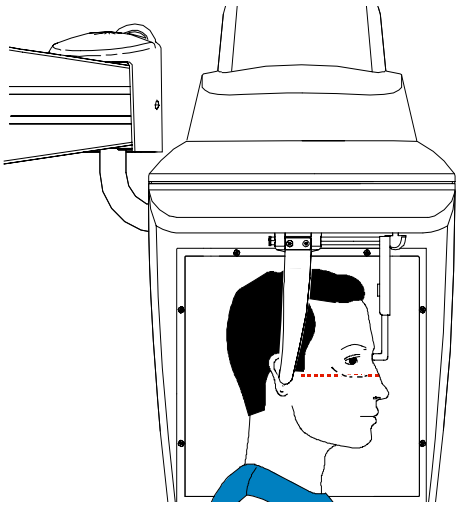
4. In the **Cephalometric Acquisition Window**, click the **Program** button to access the **Program pane**. In the **Program pane** the for a lateral exam is active.
5. Click the **Patient** button to access the **Patient pane**. Select the patient:
   - Type
   - Size
6. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click fand select **Memorize settings**.
7. Preparing and Positioning the Patient

To prepare and position the patient, follow these steps:

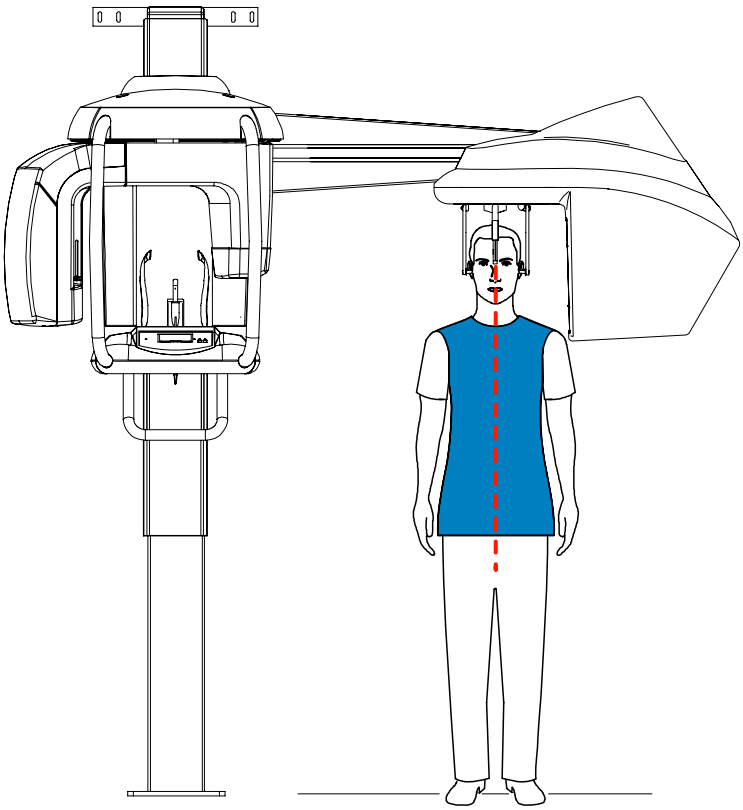
1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the cephalostat head.
4. Open the head clamps and ask the patient to stand up straight, in front of the cephalometric unit, in the appropriate position.
5. Press and hold the height adjustment buttons to level the ear cones to the patient's auditory canals.
6. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.
7. On the control panel, click to turn ON the Frankfort laser positioning beam. Align the patient with the Frankfort laser beam.



8. Lower the nasion support to a vertical position.

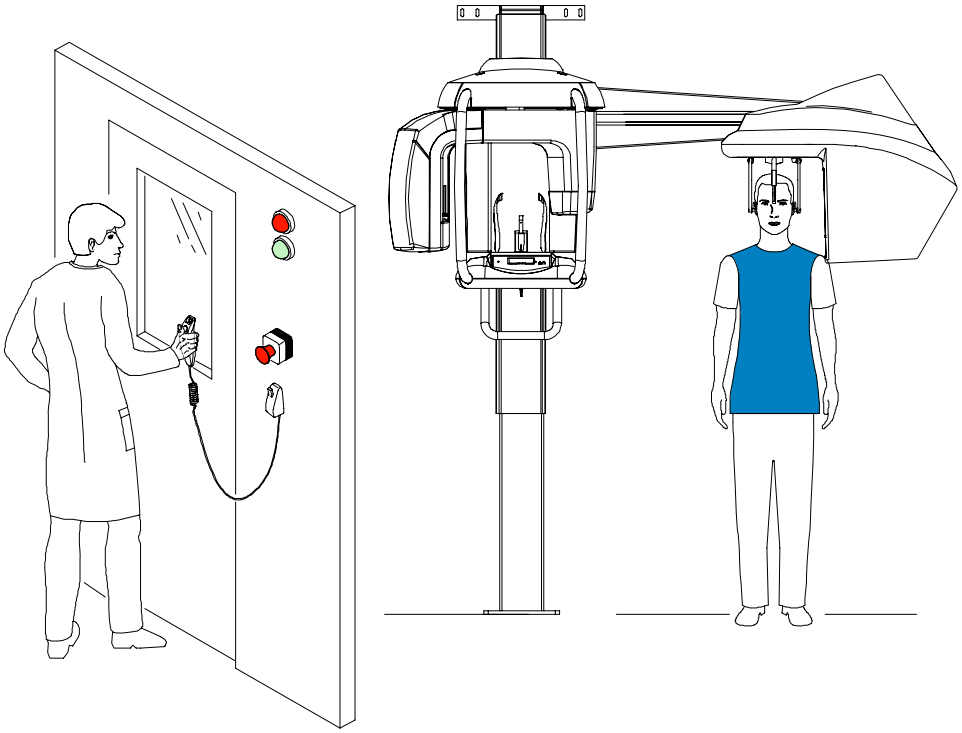


Launching the X-ray

To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.

IMPORTANT
To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.



2. Launch the x-ray with the remote control**.** Press and hold the exposure button until the end of acquisition. The turns yellow, indicating x-ray emission. The image appears on the **Preview Screen** of the **Cephalometric Acquisition Window**. When the acquisition ends, the **Cephalometric Acquisition Window** disappears and the acquired image is transferred automatically to the **Imaging Window**.

3. Check the image quality, if satisfactory, remove the ear cones and the nasion support and release the patient.

Acquiring a Frontal AP or PA Image

Before acquiring a frontal AP or PA image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Cephalometric Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To acquire a frontal AP or PA image, follow these steps:

1. Raise and block the sensor manually.
2. On the x-ray source assembly, set the collimator selector to AP/PA.
3. Position the head clamps manually for the frontal AP or PA exam.

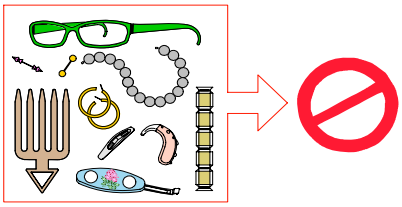
   IMPORTANT
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

4. In the **Cephalometric Acquisition Window**, click the **Program** button to access the **Program pane**. In the **Program pane**, click for a frontal PA exam.
5. Click the **Patient** button to access the **Patient pane**. Select the patient:
   - Type
   - Size
6. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click fand select **Memorize settings**.

Preparing and Positioning the Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the cephalostat head.
4. Open and position the head clamps parallel to the cephalometric sensor. Ask the patient to stand up straight in front of the cephalometric unit in the following positions:
   - For a frontal AP, facing the generator
   - For a frontal PA, facing the cephalometric sensor
5. Press and hold the height adjustment buttons to level the ear cones to the patient's auditory canals.
6. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.
7. On the control panel, click to turn on the Frankfort laser positioning beam. Align the patient with the Frankfort laser beam for the frontal AP only.

Figure 5–1 Frontal AP

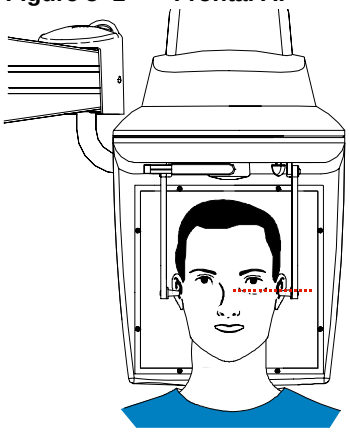


Figure 5–2 Frontal PA

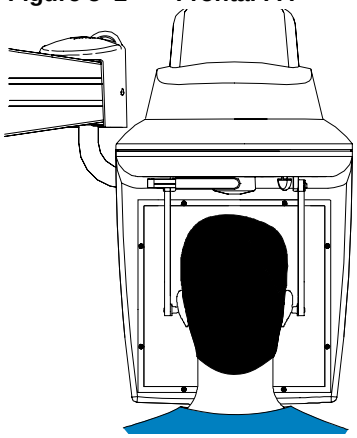


Figure 5–3 Frontal AP

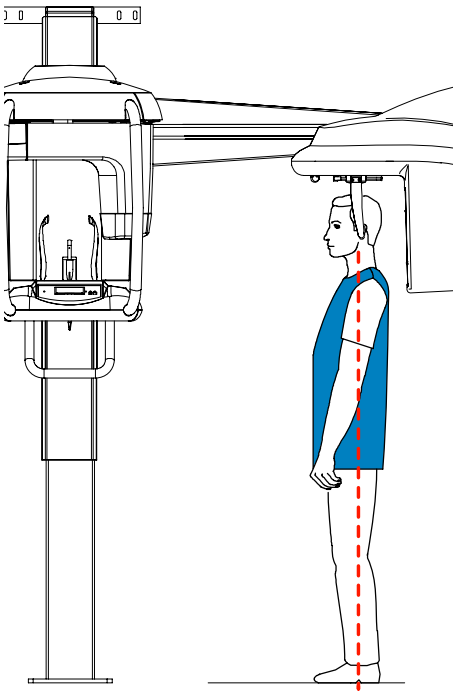
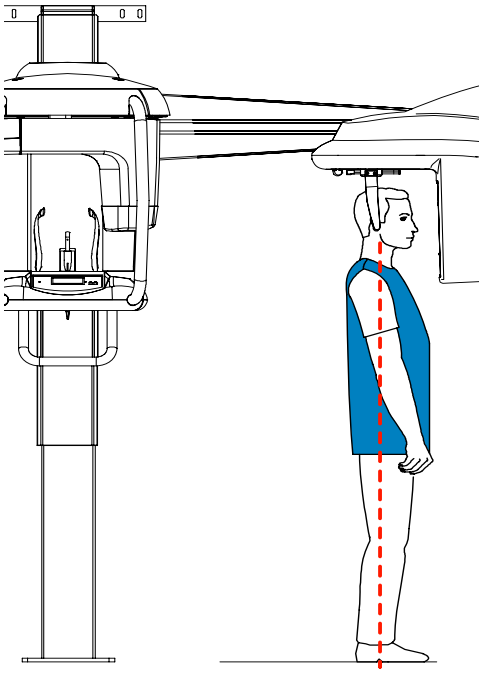


Figure 5–4 Frontal PA



Launching the X-ray

To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.

IMPORTANT

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.

Figure 5–5 Frontal AP

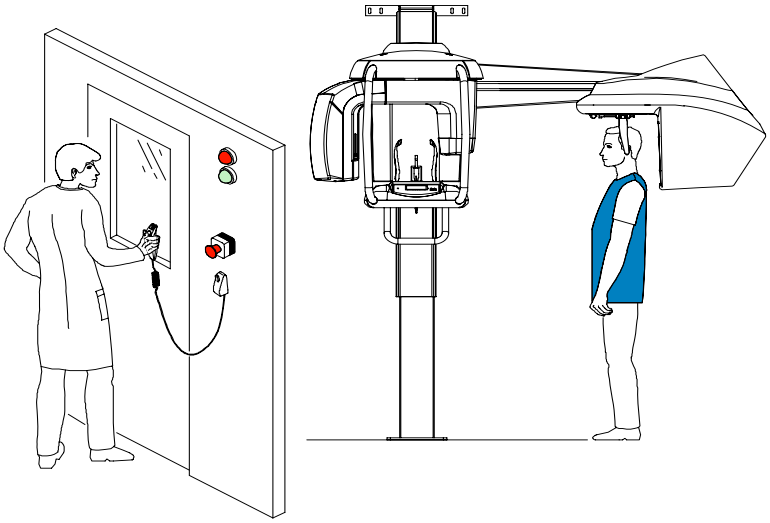
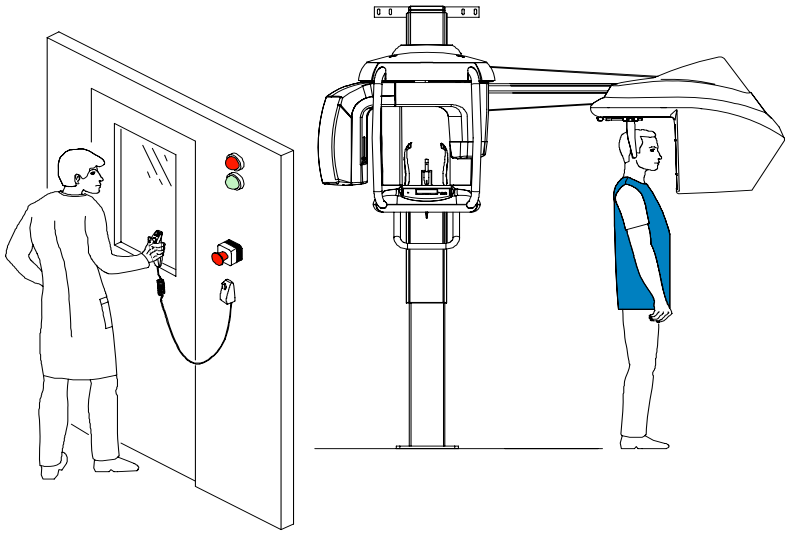


Figure 5–6 Frontal PA



2. Launch the x-ray with the remote control**.** Press and hold the exposure button until the end of acquisition. The turns yellow indicating x-ray emission. The image appears on the **Preview Screen** of the **Cephalometric Acquisition Window**. When the acquisition ends, the **Cephalometric Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.
3. Check the image quality. If satisfactory, remove the ear cones and release the patient.

Acquiring an Oblique Image

Before acquiring an oblique image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Cephalometric Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To acquire an oblique image, follow these steps:

1. Raise and block the sensor manually.
2. On the x-ray source assembly, set the collimator selector to AP/PA.
3. Position the head clamps manually for the oblique exam with the desired angle.

   IMPORTANT
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

4. In the **Cephalometric Acquisition Window**, click the **Program** button to access the **Program pane**. In the **Program pane**:

   - The for an oblique exam is active.
   - Click to select the desired angle.

5. Click the **Patient** button to access the **Patient pane**. Select the patient type.
6. Click the **Patient** button to access the **Patient pane**. Select the patient:

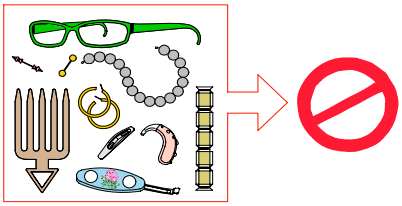
   - Type
   - Size

7. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click fand select **Memorize settings**.

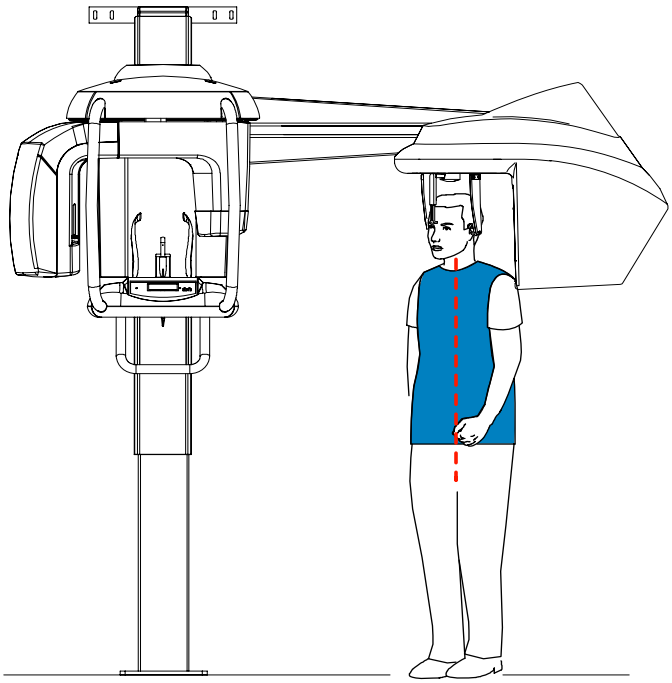
Preparing and Positioning the Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the cephalostat head.
4. Open the head clamps and ask the patient to stand up straight in front of the cephalometric unit, in the appropriate position.
5. Press and hold the height adjustment buttons to level the ear cones to the patient's auditory canals.
6. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.
7. Lower the nasion support to a vertical position.



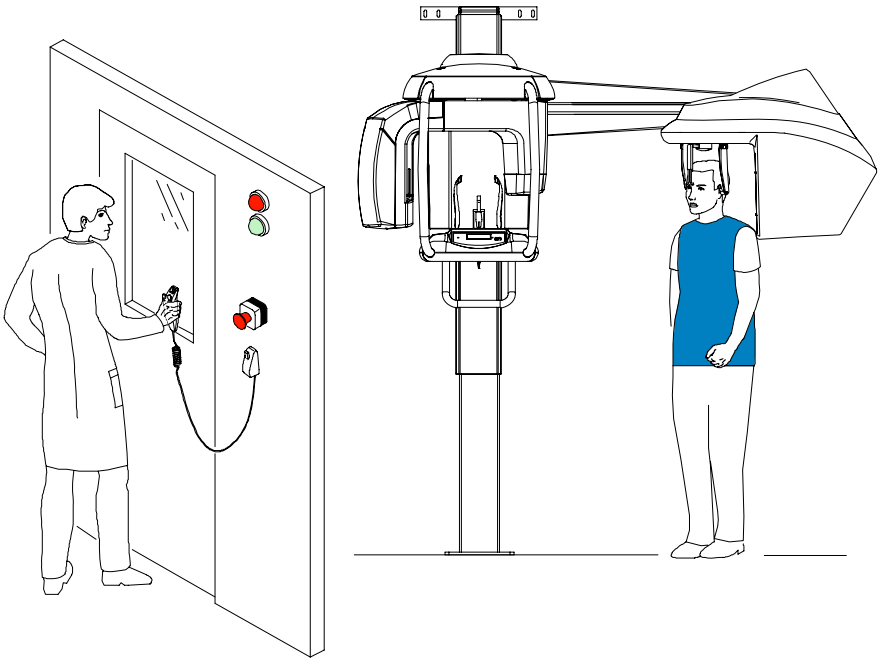
Launching the X-ray

To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.

IMPORTANT

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.



2. Launch the x-ray with the remote control**.** Press and hold the exposure button until the end of acquisition. The turns yellow indicating x-ray emission. The image appears on the **Preview Screen** of the **Cephalometric Acquisition Window**. When the acquisition ends, the **Cephalometric Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.

3. Check the image quality. If satisfactory, remove the ear cones and the nasion support. Release the patient.

Acquiring a Submento-Vertex Image

Before acquiring a submento-vertex image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Cephalometric Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To acquire a submento-vertex image, follow these steps:

1. Raise and block the sensor manually.
2. On the x-ray source assembly, set the collimator selector to AP/PA.
3. Position the head clamps manually for a frontal AP exam..

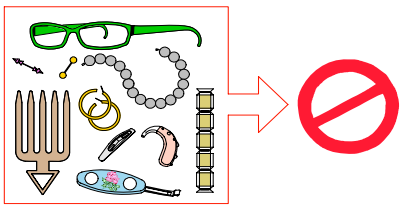
   IMPORTANT
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

4. In the **Cephalometric Acquisition Window**, click the **Program** button to access the **Program pane**. In the **Program pane**, click for a submento-vertex exam.
5. Click the **Patient** button to access the **Patient pane**. Select the patient:
   - Type
   - Size
6. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click fand select **Memorize settings**.

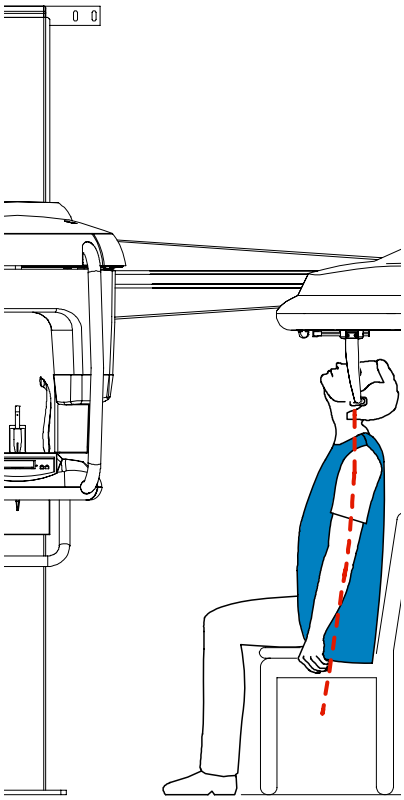
Preparing and Positioning the Patient

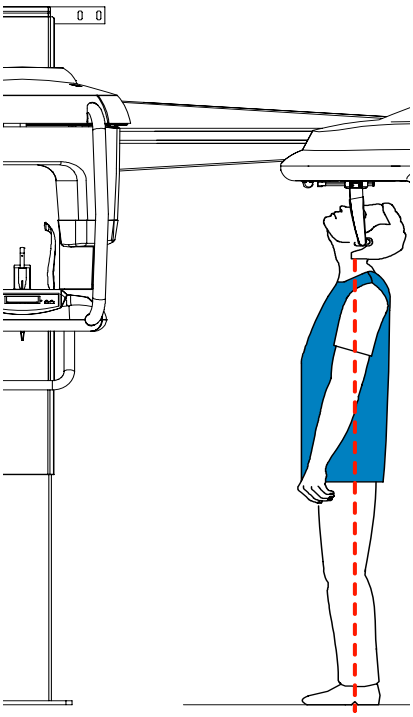
To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the cephalostat head.
4. Open the head clamps and ask the patient to stand up straight in front of the cephalometric unit, in the appropriate position.
5. Press and hold the height adjustment buttons to level the ear cones to the patient's auditory canals.
6. Insert gently one cone in the auditory canal of the patient. Turn gently the button to close the arms. Insert gently the second cone in the auditory canal of the patient.





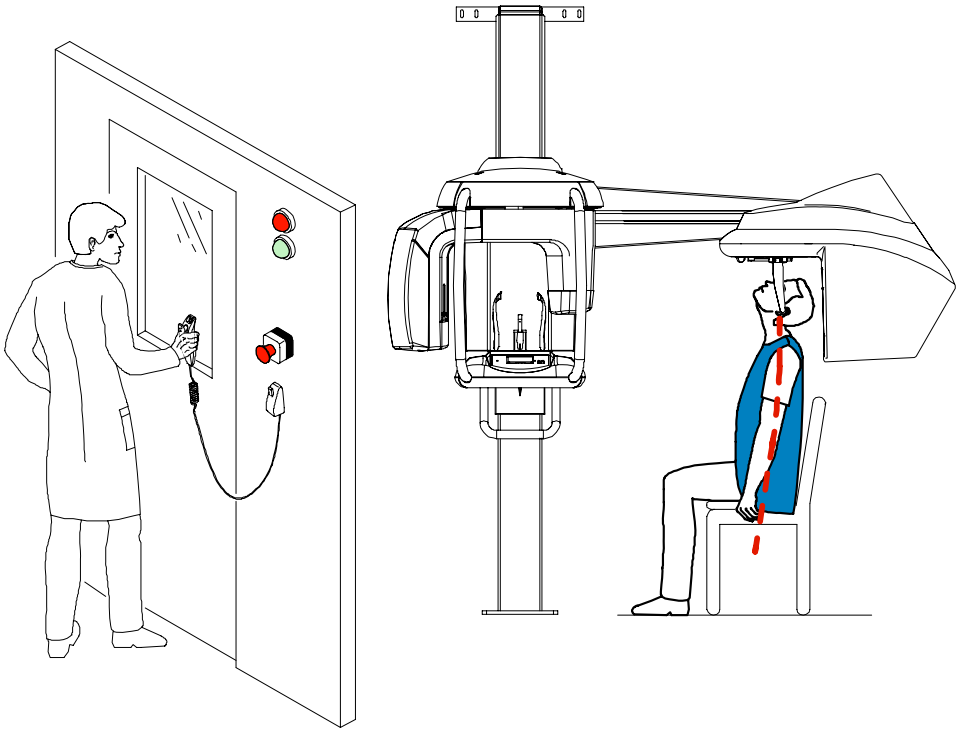
Launching the X-ray

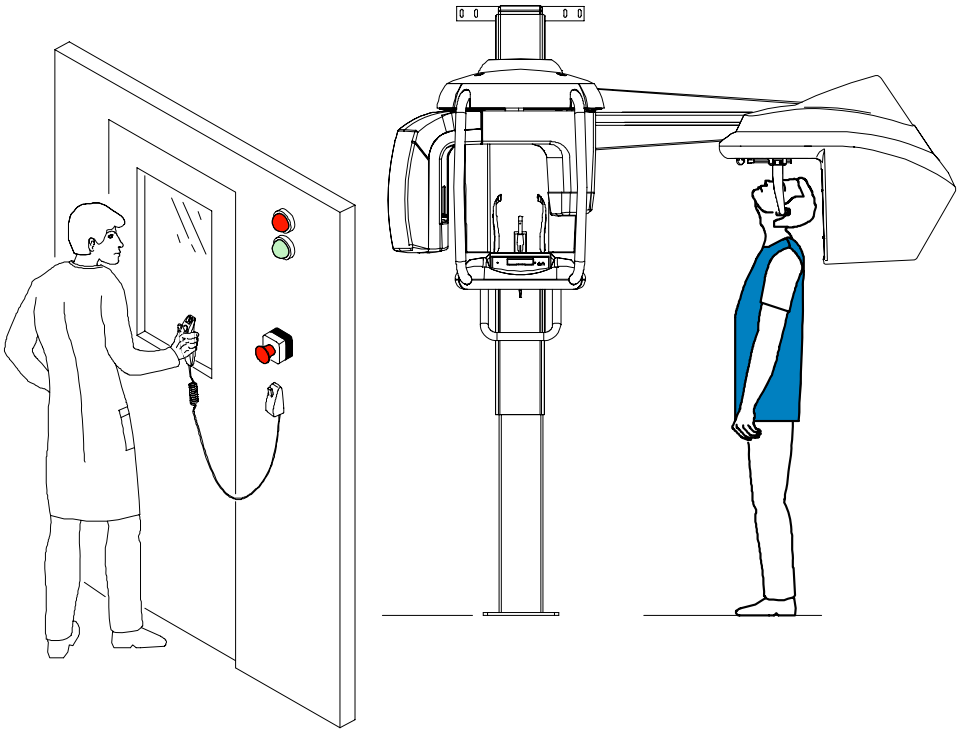
To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.

IMPORTANT

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.





2. Launch the x-ray with the remote control**.** Press and hold the exposure button until the end of acquisition. The turns yellow indicating x-ray emission. The image appears on the **Preview Screen** of the **Cephalometric Acquisition Window**. When the acquisition ends, the **Cephalometric Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.
3. Check the image quality. If satisfactory, remove the ear cones and release the patient.

Acquiring a Carpus Image

Before acquiring a carpus image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Cephalometric Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To acquire a carpus image, follow these steps:

1. Raise and block the sensor manually.
2. On the x-ray source assembly, set the collimator selector to AP/PA.
3. Position the head clamps manually for a frontal AP exam.

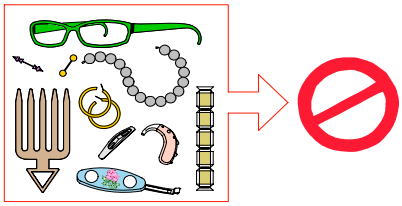
   IMPORTANT
   You must position the head clamps manually because they are not positioned automatically from the Program pane exam type selection. In this case, the relevant exam type selection icon becomes active.

4. In the **Cephalometric Acquisition Window**, click the **Program** button to access the **Program pane**. In the **Program pane**, click for a carpus exam.
5. Click the **Patient** button to access the **Patient pane**. Select the patient:
   - Type
   - Size
6. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click fand select **Memorize settings**.

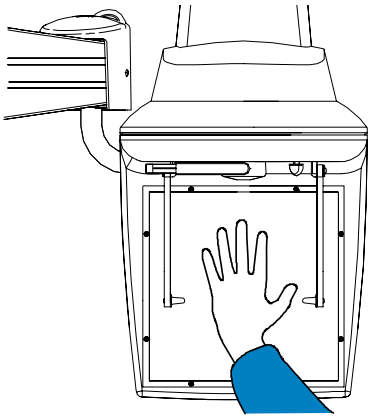
Preparing and Positioning the Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the cephalostat head.
4. Ask the patient to stand on the side of the cephalometric unit, open the hand fully and place it on the sensor.



WARNING

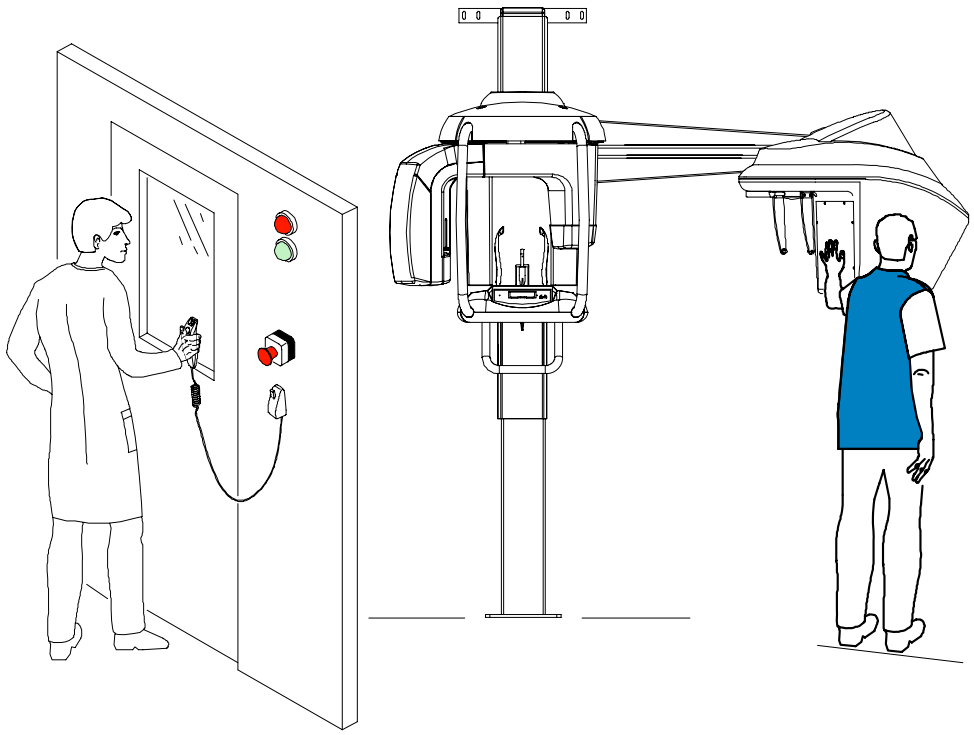
Make sure that the patient is not positioned in front of the x-ray emission.

Launching the X-ray

To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.

IMPORTANT
To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.



2. Launch the x-ray with the remote control**.** Press and hold the exposure button until the end of acquisition. The turns yellow indicating x-ray emission. The image appears on the **Preview Screen** of the **Cephalometric Acquisition Window**. When the acquisition ends, the **Cephalometric Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.

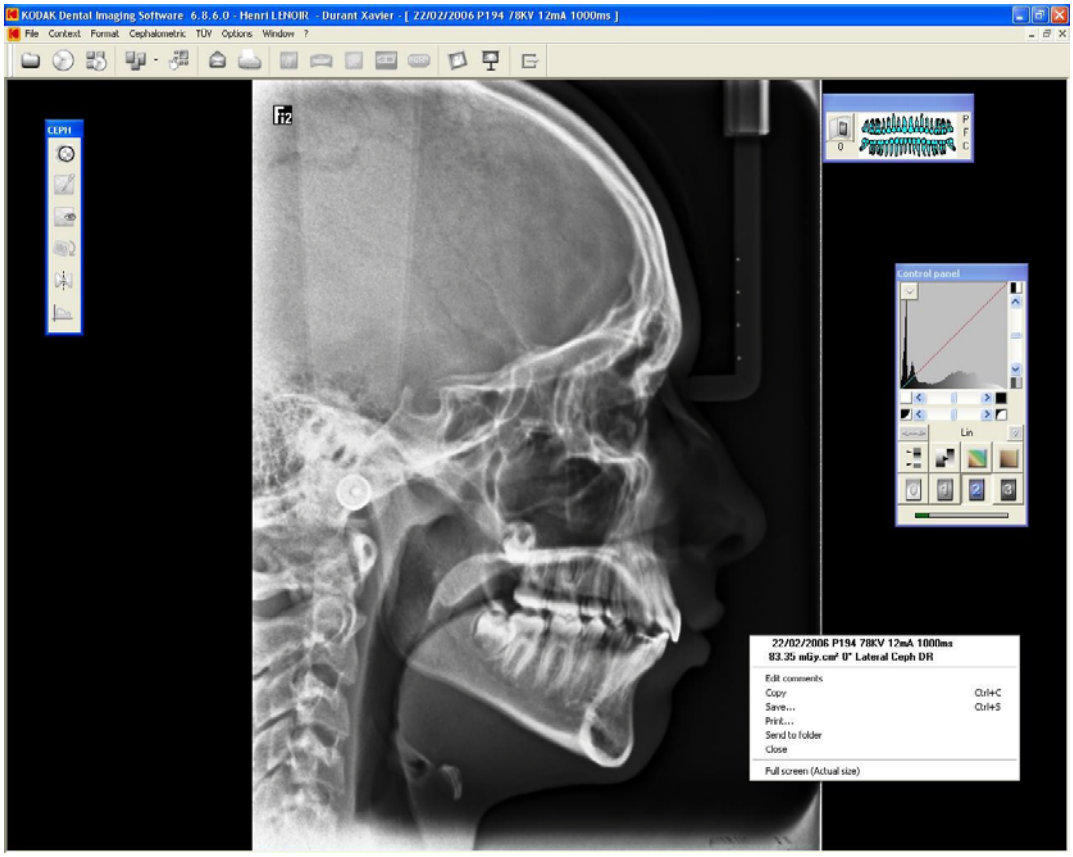
3. Check the image quality, if satisfactory, then release the patient.

X-Ray Dose Emission Information

Compliance with EURATOM 97/43 Directive

You can right-click on each image to display the estimated emitted dose received by the patient. You can use this information to calculate the effective dose received by the patient for the image.

The radiation emission dose is expressed in mGy.cm2. This dose is measured at the primary collimator outlet. The dose is accurate to +/-30%. The primary slot is 0.5 mm wide and 18.2 mm high.


KODAK Dental Imaging Software 6.8.6.0 - Henri LENOIR - Durant Xavier - [22/02/2006 P194 78KV 12mA 1000ms]
File Context Format Cephalometric TUV Options Window ?
CEPH
Control panel
Lin
22/02/2006 P194 78KV 12mA 1000ms
83.35 mGy.cm² 0° Lateral Ceph DR
Edit comments
Copy Ctrl+C
Save... Ctrl+S
Print...
Send to folder
Close
Full screen (Actual size)

Chapter 6
MAINTENANCE

This section describes the maintenance tasks that you need to perform regularly for your KODAK 8000C unit and the accessories.

WARNING

Switch off the unit, then, clean all accessible parts of the machine with an alcohol-based non-corrosive product. Avoid using liquids inside the unit. Follow the alcohol-based product manufacturer recommendations for safety precautions.

CAUTION

You can use the usual disinfectant products, but we recommend that you protect the unit from contamination by using barriers available from dental distributors. Follow the disinfectant product manufacturer recommendations for safety precautions.

Daily

Carry out the following maintenance tasks:

Table 6–1 Daily Maintenance Tasks

Accessories	Maintenance Tasks
Head clamps and ear cones	Clean with medical-grade 76% alcohol disinfectant before the next patient is x-rayed.
Nasion support	
All components that come into contact with the patient and the operator	Clean all components with medical-grade 76% alcohol disinfectant before the next patient is x-rayed.
Outer covers of the unit	Wipe the unit with a dry cloth at the end of each day's operation. ***WARNING*** **Do not use detergents or solvents to clean the outer covers of the unit.**

Monthly

Wipe the outer covers of the unit with a soft, dry cloth.

Annually

We recommend a general inspection of the unit carried out by an authorized service technician.

Chapter 7
TROUBLESHOOTING

Quick Troubleshooting

Occasionally, malfunctions can occur during use in the event of an incorrect action. An information **(I)** error code is displayed on the **Display Screen** of the unit **Control Panel** and the message is displayed on the popup on the **Acquisition Window System Status Screen**. In some cases, an audible warning is also issued.

The following table lists the information messages, their description and the action to take:

IMPORTANT
If an "E" message is displayed, the malfunction persists or more serious conditions occur, contact a qualified technician. When you call the qualified technician have the following information ready:

- **Model Number: KODAK 8000C**
- **Error Code Number: E xx**
- **Message displayed on the popup on the Acquisition Window.**

Table 7–1 Information Messages

Information Error Code	Information Message	Description	Action
I 1	X-Ray tube cooling	Cooling in progress.	Wait until the **Generator Cooling Indicator** on the **Acquisition Window** reaches zero.
I 2	Thermal security	Cooling in progress.	Wait until the **Generator Cooling Indicator** on the **Acquisition Window** reaches zero.
I 3	Release handswitch	The acquisition has ended.	Release the exposure button of the x-ray remote control.
I 4	Ceph sensor position	The cephalometric sensor position does not match the selected radiological program.	Position correctly the sensor for: • LA, for lateral position • AP/PA, for all the other radiologica programs
I 5	Head clamps position	The head clamps position does not match the selected exam program.	Position manually the head clamps for the selected exam.
I 6	Wrong rotative arm position	The exposure button of the x-ray remote control is inactive because the rotative arm is not in the start position.	Press to reset the rotative arm in start position.

Table 7–1 Information Messages (Continued)

Information Error Code	Information Message	Description	Action
I 7	Raise sensor	The panoramic sensor is incorrectly positioned.	Check that the panoramic sensor is fully retracted and locked in the upper position.
I 8	Lower sensor	The panoramic sensor is incorrectly positioned.	Check that the panoramic sensor is fully retracted and locked in the lower position.
I 9	Cooling Ceph sensor	The Cephalometric sensor is in the cooling process.	Wait until the **Ready Indicator LED** is green.
I 10	Collimator position	The collimator is not correctly positioned or does not match the radiological program selection.	Reposition the collimator.
I 13	Mains too low	There is a problem with the mains current input.	Call a qualified technician.
I 14	Mains too high	There is a problem with the mains current input.	Call a qualified technician.
I 15	Interface inactive	The **Acquisition Window** cannot be accessed.	1. Check that the unit is switched on. 2. Wait for the connection between the unit and the PC. 3. Check that the **Acquisition Window** is not masked by another application, in this case close the masking application.